PONY

سلسلة كتب الأستاذ

Computer and ICT

Final Revision

By

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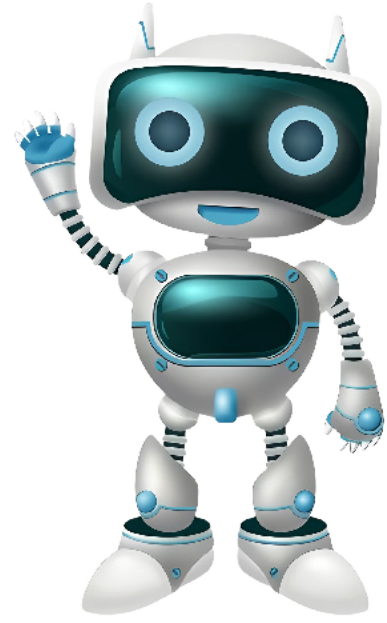


1st Preparatory

Second Term

Summary

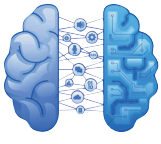
Lesson 1 Artificial Intelligence Applications

- **Narrow AI:** It focuses on specific tasks, such as face recognition or language translation.
- **General AI (GAI):** It can perform any human tasks, think, innovate, and adapt.
- **Super AI (SAI):** It is the most advanced; it can solve complex problems and discover new things.

Key Points:

- **Applications of AI in Daily Life:**
  1. **Personal Assistant:** Like Siri or Alexa, They use AI to understand and perform commands.
  2. **Smart Games:** Video games use AI to make games fun and challenging.
  3. **Smart Cars:** Self-driving cars are enabled by AI.
  4. **Digital Doctors:** AI aids in faster and more accurate medical diagnoses.
  5. **Instant Translator:** AI translates languages in real-time.
  6. **Smart Shopping:** AI suggests products based on previous **purchases.**

- **Fields of Artificial Intelligence:**
  1. **Machine Learning:** AI learns from data and experiences.
  2. **Natural Language Processing (NLP):** AI understands, interprets, and speaks human language.
  3. **Computer Vision:** AI analyzes and understands visual information.



4. **Robotics:** AI-powered robots perform various tasks.
5. **Expert Systems:** AI solves complex problems and make decisions.
6. **Deep Learning:** AI learns complex tasks using neural networks.

» **Creating Intelligent Models with Teachable Machine:**

- **Teachable Machine:** It is a tool for creating models to recognize images, sounds, and movements.
- **Model Building Training:** Teaching AI by showing it examples is similar to teaching a child.

Lesson 2 Sensors

Definition:

» **Sensors:** They are devices that sense changes in the environment and convert them into signals for machines to understand and make decisions.

Key Points:

» **How Sensors Work:**

1. **Sensing:** They capture information (heat, light, and sound).
2. **Signal Conversion:** They convert information into electrical signals.
3. **Transmission:** They send signals to display results or perform operations.

» **Importance of Sensors for Robots:**

– **Function:** Sensors act as the "senses" of robots, helping them see, hear, sense, and touch.

» **Types of Robotic Sensors:**

1. **Distance Sensors:** They measure the distance to avoid collisions.
2. **Light Sensors:** They adapt to changing light conditions.
3. **Sound Sensors:** They respond to voice commands.
4. **Motion Sensors:** They detect movement and direction changes.

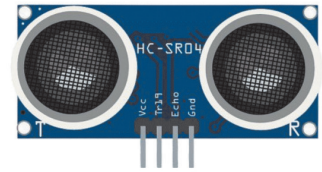
Summary

5. **Special Sensors:** They measure temperature and humidity.

Examples of Devices Using Sensors:

1. **Vacuum Cleaner Robot:** It avoids obstacles.
2. **Surgical Robot:** It uses precise sensors to perform surgeries.
3. **Self-Driving Cars:** They see the road and make decisions.

Types of Distance Sensors:



1. **Ultrasonic Sensors:** They emit high-frequency sound waves to measure distance.
   - **Examples:** Vacuum cleaner robots, parking systems, and fluid level measurement

2. **Laser Rangefinders:** They emit laser beams for high accuracy.
   - **Examples:** 3D laser scanners, ground scanning systems, and industrial measurement
3. **Visible Light Sensors:** They use digital cameras to analyze images.
   - **Examples:** Self-driving car cameras, industrial vision systems, and augmented reality systems
4. **Infrared Sensors:** They emit infrared rays, then receive the returning rays.
   - They are widely used in consumer electronics.

   - **Examples:** Remote controls, and non-contact thermometers
5. **Time of Flight Sensors:** They measure the light pulse travel time.
   - **Examples:** 3D sensors, and motion tracking systems

Factors for Choosing Sensors:

1. **Required Range:** The maximum distance to measure
2. **Required Accuracy:** The measurement precision needed
3. **Operating Environment:** Conditions like lighting, temperature, and humidity.
4. **Cost:** Device and installation expenses.

Daily Applications of Sensors:

1. **Smartphones:** Taking pictures, adjusting lighting, determining locations
2. **Modern Cars:** Measuring speed, warning of collisions, assisting in parking
3. **Smart Homes:** Motion sensors for automatic lighting
4. **Phone Microphone:** Converting sound to electrical signals
5. **Motion Sensors in Games:** Detecting phone tilts
6. **Touch Screen:** Sensing finger touches

Lesson 3 Robots

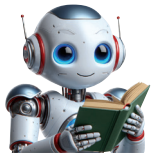
Definition:

Robot: It is a device programmed to automatically perform specific tasks, capable of moving, sensing, and interacting with its surroundings.

Key Points:

Types of Robots:

1. **Industrial Robots:** They are used in factories for precise tasks, e.g., car production.
2. **Home Robots:** They are found in homes, e.g., Roomba for cleaning floors.
3. **Medical Robots:** They assist in surgeries with high accuracy.
4. **Educational Robots:** They are used in schools to teach programming, e.g., LEGO Mindstorms.



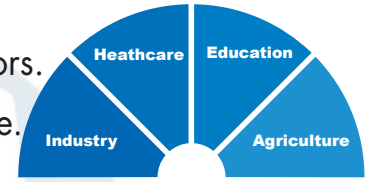
Robot Components:

1. **Structure:** It is the main part carrying all components, made of materials like metal, plastic, or carbon.
2. **Sensors:** They are the senses of the robot, e.g., sound sensors and cameras.
3. **Motors:** They move parts of a robot, so it can move and execute commands, e.g., electric motors and pneumatic motors.

Summary

4. **Controller:** It is the "brain" of the robot, processes data and issues commands.
5. **Power Source:** It can be batteries, solar cells, or direct electrical power source.
6. **Software:** It makes the robot "smart," includes algorithms for responses.
7. **Communication Tools:** They interact with users or other robots, e.g., Bluetooth and Wi-Fi.

Areas of Use of Robots:



1. **Industry:** They improve productivity, reducing errors.
2. **Healthcare:** They assist in surgeries and patient care.
3. **Education:** They provide interactive learning.
4. **Agriculture:** They are used in precision farming to increase crops and reduce waste.

Challenges:

1. **Safety:** The need to ensure the safety of robots during work.
2. **Employment:** Concerns that they can replace human labor.
3. **Ethics:** Impact on society.

Benefits:

1. **Increased Efficiency and Productivity:** They can do continuous work without fatigue or interruption.
2. **High Accuracy and Reduced Errors:** They are precise in tasks, like surgeries and electronics assembly.
3. **Safety and Security:** They can perform dangerous tasks and handle heavy weights and hazardous materials.
4. **Adaptability and Diversity:** They perform various tasks efficiently. Ex: home robots and educational robots
5. **Reduced Costs:** They provide long-term cost savings by reducing human labor or errors, and achieving accuracy.
6. **Contributing to Development:** They encourage technological advancements, e.g., space exploration and medical research.

Lesson 4 Scratch

Definition:

- **Scratch Program:** It is a visual and easy-to-use educational tool for learning programming through games, animations, music, and more.

Key Points:

- **Scratch Program Features:**
  1. **Simple Interface:** It uses and orders visual blocks to form programs.
  2. **Educational:** It is designed to teach basic programming concepts in a fun way.
  3. **Free:** It is available for download from its official website for free.
  4. **Creative Thinking:** It develops skills in creative thinking and problem-solving.
  5. **Problem-solving Skills:** It solves problems in a logical way.
  6. **Collaboration:** It enhances teamwork skills.
  7. **Foundation:** It provides a strong start for learning more complex programming languages.
  8. **Sharing:** Its projects can be shared with others.
- **Program Interface:**
  - Menu Bar
  - Command Blocks Area
  - **Script Area:** It collects programming sections.
  - **Stage Area:** It shows project results.
  - Sprite Object
  - **Sprites Area:** It contains the project's objects.
- **Coordinates:**
  - **Determine Coordinates:** X=..... (horizontal), Y=..... (vertical)
  - **Change Coordinates:** Drag and drop the sprite to a new position.

Summary

Implement the project:

– To execute the project, click on the icon .

– To stop the execution of the project, click on the icon .

Saving the Project:

– File Menu: Choose "Save to your computer".

– The file extension is Sb3.

Lesson 5 Sprites Area in Scratch

Definition:

Sprites Area: It contains the sprites used in the project.

Key Points:

Sprites Area Features:

1. **Name:** It is modified by clicking and renaming.
2. **Location:** It determines the sprite's position (X, Y values).
3. **Direction:** It changes the sprite's movement direction.
4. **Visibility:** It shows or hides the sprite.
5. **Size:** It changes the sprite's size.
6. **Delete:** It removes the sprite.
7. **Add:** It is used to choose a new sprite.

Adding a New Sprite:

– Choose Sprite: Select Basketball.

– Remove: Delete the cat sprite.

Project 2: Moving the Ball

– **Objective:** To move the ball randomly, make a sound, repeat 10 times.

Steps:

1. **Motion:** Choose "Go to random position".
2. **Sound:** Choose "Play sound".
3. **Control:** Choose the "Repeat" command.
4. **Events:** Choose the "When Clicked" command.

Project 3: Spaceship

- Objective: To move a spaceship randomly, make a sound, change size, repeat 5 times, start from (0, 0).
- Steps:
  1. Insert Sprite: Add Rocketship.
  2. Remove: Delete the cat sprite.
  3. Background: Choose "Space".

Square Drawing Project:

1. Open Project: Start a new project.
2. Select Pen: Drag the "pen" block to start drawing.
3. Set Color and Size: Use "Set Pen Color to" and "Set Pen Size to" blocks.
4. Move the Pen: Use "Go to x:y:" blocks to draw lines.
5. Repeat the Steps: Draw more lines to form shapes.

Drawing a circle:

- Use the "Repeat" block to repeat the process of drawing short lines at different angles.

Notes:

1. Drawing Shapes: Set start and end points for lines.
2. Adding Details: Add features like eyes, mouth, and ears.

Lesson 6 Principles of Python

Definition:

- Python: It is a programming language widely used in data science, machine learning, and web development.

Summary

Key Points:

- **Features of Python:**
  1. **Open Source:** It is free and open for everyone to use and develop.
  2. **Interpreted Language:** It translates codes line by line, making error detection easier.
  3. **Versatility:** It is used in web development, data science, AI, machine learning, and game programming.
  4. **Easy-to-Use:** It is simple and organized, with syntax similar to English.
  5. **Integration:** It can be integrated with languages like C, C++, and Java.
  6. **Libraries:** Numerous libraries are available for various tasks.
- **Python Libraries:**
  - **NumPy:** It is used in data science, statistics, and AI.
  - **Pandas:** It is used for data analysis and processing.
  - **Matplotlib:** It is used for creating graphs and charts.
- **How to Download Python:**
  1. **Visit:** Go to the official Python website www.python.org.
  2. **Choose Download:** Select the download option.
  3. **Select System:** Choose your operating system (Windows, Mac, or Linux).
  4. **Choose Bit Version:** Select 64-bit or 32-bit based on your device specifications.
  5. **Install:** Download and install the program, following the instructions.

Lesson 7 Variables in Python

Definition:

- **Variables:** They are reserved places in memory to store values that can change during program execution.

Key Points:

Conditions for Naming Variables in Python:

1. Start with a letter or underscore (_).
2. Contain letters (A-Z), numbers, or underscore (_).
3. Avoid reserved words.

Types of Variables in Python:

1. **Numbers:** To store numerical values.
   - **Integer Variables (int):** X = 5, Y = 10
   - **Decimal Variables (float):** Z = 5.25, A = 8.32
2. **Strings:** To store texts, enclosed in single or double quotes.

– **Examples:** Name = "Taher", City = 'Cairo'

3. **Booleans:** They contain only two values, True or False.

– **Examples:** Is_taher_student = False, Is_taher_a_teacher = True

Python Program Interface:

1. **Interactive Python Interface (Python Shell):** It is used to write and execute simple codes directly.

– It is automatically installed when you install the language.

2. **Text Editor:** It is used to write longer, complex codes and save them for later execution.

Using the type ( ) Function:

– **Purpose:** To determine the type of a variable.

Simple Python Code Using Variables:

– **Print Function:** It displays text, variables, or results of mathematical operations on the output screen.

Model Exam 1

1 Choose the correct answer:

1. One of the common applications of sensors is the use of infrared in ..... .
   a. smartphones b. remote controls
   c. vacuum cleaners d. 3D scanning
2. ..... uses data science and machine learning.
   a. Word b. Excel c. Python d. PowerPoint
3. ..... like Siri or Alexa use artificial intelligence to understand your commands.
   a. Personal assistants b. Instant translators
   c. Smart shopping sites d. Digital doctors
4. The file extension for a Scratch project is ..... .
   a. Docx b. Sb3 c. bmp d. Jpg
5. ..... are used to avoid obstacles.
   a. Light sensors b. Sound sensors
   c. Distance sensors d. Heat sensors

2 Put (✓) or (✗):

1. It is not possible to create applications and websites using Python. ( )
2. The motors used in robots include electric motors and air motors. ( )
3. The position of the Sprite can be changed on the stage by double-clicking on it. ( )
4. Narrow artificial intelligence can perform any task that a human can perform. ( )
5. Distance sensors help cars determine the distance to other vehicles. ( )

3 Complete the following sentences:

1. The types of artificial intelligence include ..... and ..... .
2. Robot components include ..... and ..... .

Model Exam 2

1 Choose the correct answer:

1. One of the advantages of Python is that they are ..... .
   a. open source b. limited use c. not free
2. In Scratch program, to add a sound effect the sprite, use the command ..... .
   a. Repeat b. Looks c. Play sound
3. The file extension for a Scratch project is ..... .
   a. Docx b. Sb3 c. bmp
4. In Scratch, to add a new object, press on ..... .
   a. Start b. Sprite c. Blocks area
5. ..... AI can solve problems that are difficult for humans to solve.
   a. Narrow b. General c. Super
6. In Scratch, the result of the work or project appears in the ..... .
   a. Blocks area b. Stage area c. Script area
7. One of the common applications of sensors is using infrared in ..... .
   a. vacuum cleaners b. smartphones
   c. remote controls

2 Put (✓) or (✗):

1. In the wait command, the wait value of 1 represents 1 second. ( )
2. The first step in the operation of the sensor device is signal conversion. ( )
3. The position of an object on the platform is determined only by the value of the horizontal axis X. ( )
4. Python is one of the most difficult programming languages. ( )
5. The sprites used in the project appear in the Sprites area. ( )
6. Numpy is a library used in data science, statistics, and artificial intelligence. ( )
7. To determine the type of a variable, we do not need the type() function. ( )

Model Exam 3

1 Choose the correct answer:

1. In Scratch, to repeat the movement of an object, we use the ..... command.
   a. Start b. Repeat c. stop
2. A Scratch file extension is ..... .
   a. Docx b. Sb3 c. Bmp
3. In Scratch, to add sound effects to an object, we use the ..... command.
   a. Repeat b. play sound c. Looks
4. To add a new object, click on ..... .
   a. Area Blocks b. Choose Sprite c. None of them
5. A new background is added to the project by clicking on ..... .
   a. Choose Sprite b. Choose Backdrop c. None of them

2 Put (✓) or (✗):

1. In the wait command, the value of waiting represents 1 second. ( )
2. In Scratch, the horizontal and vertical axis are used to know the current location of the object on the platform. ( )
3. We use click and drag and drop to interact with any command inside the code segment. ( )
4. To make the movement continuous, you can assemble the command several times. ( )
5. Before executing any project, the objects coordinates on the platform should be y=10, x=10. ( )

Model Exam 4

1 Choose the correct answer:

1. ..... artificial intelligence can solve problems that are difficult for humans to solve easily and discover new things we never imagined before.
   a. Narrow b. General c. Super d. Precise
2. Laser rangefinders are accurate because they use ..... .
   a. sound waves b. visible light
   c. high frequency waves d. laser beams
3. The ..... is used for non-contact temperature measurement.
   a. ultrasonic sensor b. infrared sensor
   c. light sensor d. motion sensor
4. A new background for the project is inserted in the Scratch program by pressing ..... .
   a. Choose a Backdrop b. Script Area
   c. Stage d. Choose Sprite

5 To execute the project, click on the icon ..... .

a. b. c. d.

6 In Scratch, to repeat the sprite's movement 10 times from Control, we use the ..... command.

a. Repeat b. Start c. Choose Sprite d. Stop

7 To add a new object, press on ..... .

a. Choose Sprite b. Start c. Repeat d. Play sound

8 One of the advantages of Python is that it is ..... .

a. open source b. closed source
c. not free d. limited use

9 The official website of Python is ..... .

a. www.python.org b. www.python.edu
c. www.pythonlibr.adp d. www.application.org

10 ..... is a library for data analysis and manipulation.

a. Pandas b. Matplotlib c. NumPy d. Angular

11 The function ..... is used to display texts or values on the output screen.

a. Cos( ) b. Type( ) c. Print( ) d. Sin( )

12 One of the sensors that are used to measure distance using high frequency sound waves are ..... .

a. ultrasonic sensors b. laser rangefinders
c. infrared sensors d. motion sensors

2 Put (✓) or (✗):

1 Before executing any project, the coordinates of the object at the stage are X=10 and Y=10. ( )

2 In the Scratch program, students face difficulties in sharing projects with others. ( )

3 Robots use communication tools to interact with users or other robot. ( )

4 Self-driving cars rely entirely on artificial intelligence. ( )

5 Python is considered an interpreted language because it translates the code line by line. ( )

6 In Python, the NumPy library is used in data science, statistics, and artificial intelligence. ( )

Model Exam 5

1 Choose the correct answer:

1 The first step in the operation of the sensor is ..... .

a. transmitting b. sensing c. transduction

2 The "Sprite" in Scratch represents a/ an ..... .

a. background b. object or character c. command block

3 To move the pen to a specific point, use the ..... block.

a. Go to x: y: b. Turn 15 degrees c. Move 10 steps

4 Python is ..... programming language.

a. a free b. an open source c. all of them

5 The structure of a robot can be made of materials, such as ..... .

a. metals b. plastic c. all of them

2 Put (✓) or (✗):

1 General artificial intelligence is more advanced. ( )

2 Smart shopping gives you suggestions for products you might like. ( )

3 The design of the structure affects the weight of the robot and its ability to move. ( )

4 The Scratch program is paid. ( )

5 The sprites used in the project appear in the Sprites area. ( )

3 Choose the right scientific term for the following statements: (Narrow AI - Python)

1. It is a programming language widely used in data science, machine learning, and web development.
2. It focuses on specific tasks, such as face recognition or language translation.

Model Exam 6

1 Choose the correct answer:

1. To know the type of the variable statement in Python language, use the ..... function.
   a. Cos( ) b. Type( ) c. Print( ) d. Sin( )
2. To measure body temperature without direct contact, use the ..... sensors.
   a. ultrasonic b. visible light c. laser d. infrared
3. To repeat the object's movement many times on the stage in Scratch program, use ..... .
   a. Repeat b. Move c. Wait d. Delete
4. Solving the problems that are difficult for humans to solve easily is a type of an artificial intelligence named ..... .
   a. General b. Narrow c. Super d. accurate
5. The default extension of the Scratch files is ..... .
   a. .sb3 b. .exe c. .zip d. .txt

2 Put (✓) or (✗):

1. One of the disadvantages of Python is the lack of libraries that you can use. ( )

2 Artificial intelligence can help doctors diagnose diseases. ( )

3 The Scratch program is considered a difficult educational tool to use. ( )

4 The design of the structure affects the weight of the robot and its ability to move. ( )

5 The first step in the operation of sensors is transmission. ( )

6 The Start command in the Scratch program is used to stop the project. ( )

7 Self-driving cars depend entirely on artificial intelligence. ( )

Model Exam 7

1 Choose the correct answer:

1 The smart vacuum cleaner is a type of ..... robot used for floor cleaning.

a. industrial
b. household (domestic)
c. agricultural
d. medical

2 Robots help in carrying out some dangerous tasks such as ..... .

a. dismantling bombs
b. mountain climbing
c. cleaning homes
d. manufacturing electronics

3 One of the Artificial Intelligence (AI) applications we use in our daily life is ..... .

a. the calculator
b. instant translation (live/real-time translation)
c. programming languages
d. the mobile phone

4 ..... is an educational tool that allows learning the basics of programming in a fun and engaging way, such as programming games and illustrated stories.

a. Artificial Intelligence
b. Scratch
c. Python
d. A robot

5 The Scratch program uses a simple visual interface based on a set of ..... placed on top of each other in a specific order to create programs.
a. Blocks b. Sprites c. Events d. Motions

6 In programming languages, ... represent a reserved location in memory for storing a specific value that can change during program execution.
a. Constants b. Events c. Variables d. Functions

7 ..... Artificial Intelligence is a type of AI that can discover new things that we could not have imagined before.
a. General b. Narrow c. Broad/Wide d. Super

8 The Python programming language is characterized by ..... .
a. being free and open source b. having only one use
c. being an interpreted language d. being very fast

9 In the Scratch program, commands or blocks are moved in the ..... . area.
a. Script/Programming area b. Stage area
c. Sprites area d. Menu bar

10 To repeat the movement of the sprite on the stage a specific number of times, we use the ..... command.
a. Repeat b. Play Sound
c. Go to d. Stop

2 Put (✓) or (✗):

1 A robot is a device that can be programmed to perform a set of tasks automatically. ( )

2 The personal assistant like the Siri application is one of the Artificial Intelligence applications. ( )

3 The direction of the sprite in the Scratch program is determined by changing the values of the horizontal (X) and vertical (Y) axes. ( )

4 The Python language is not suitable for developing websites and applications. ( )

5 The Scratch program is characterized as being a free program. ( )

3 Complete by using words between brackets:

(Sensors - Bluetooth - Strings - Touch Screen - Sprites - Robotic Arm - Motions)

1. The sprites used in a Scratch project appear in the ..... area.
2. Robots use communication and interaction tools with humans and other robots, such as ..... .
3. Smartphones contain a group of sensing devices, including the ..... .
4. The types of variables we use to store texts like names and addresses in the Python language are called ..... .
5. ..... devices capture information from the surrounding environment and convert it into electrical signals.

Model Exam 8

1 Choose the correct answer:

1. Artificial intelligence ..... can solve problems that are difficult for humans to solve easily and discover new things we never imagined before.
   a. Narrow b. General c. Super d. Precise
2. Sensors help robots to ..... .
   a. Teach them new languages b. Increase their size
   c. Slow down their operations d. Allow them to interact with their environment
3. One of the features of the Python language is that it is ..... .
   a. Open source b. Closed source
   c. Not free d. Limited use
4. The Scratch program helps the student to ..... .
   a. Remote controls
   b. Learn the principles of programming
   c. 3D scanning d. All of the above

5 In production lines, robots can perform repetitive tasks accurately and without any delay, which leads to ..... .

a. Slow production process
b. Decreased efficiency and productivity
c. Increased efficiency and productivity
d. Lack of product development

6 In Scratch program, to add sound effect to the sprite, use the command ..... .

a. Repeat
b. Choose a Backdrop
c. Play sound
d. Looks

2 Put (✓) or (✗):

1 Variables in programming languages are a reserved place in memory to store and save a specific value ( )

2 Artificial intelligence can learn new things slowly ( )

3 The smart lighting system in the home uses sensors to turn on the lights automatically when someone enters the room ( )

4 The motors used in robots include electric motors and pneumatic motors ( )

5 Python is used in developing web applications, data science, artificial intelligence, machine learning, and game programming ( )

6 In the Scratch program, the student needs to write a lot of complex codes ( )

3 Complete by using words between brackets:

(Personal assistant - Interpreted - Artificial intelligence - Sb3 - Remote controls - Docx - Type( ))

1 ..... is a branch of computer science.

2 Python translates code line by line, which means it is ..... . Language.

3 ..... like Siri or Alexa use artificial intelligence to understand and execute your commands.

4 One of the common applications of sensors is the use of infrared rays in ..... .

5 To know the type of the variable statement, we use the function .....

6 The Scratch file extension is ..... .

Model Exam 9

1 Choose the correct answer:

1 A common application of sensors is the use of infrared in ..... .

a. Smartphones b. Remote controls

c. Vacuum cleaners d. 3D scanning

2 To add a new object, press on ..... .

a. Start b. Choose Sprite

c. Area Blocks d. Stop

3 If the movement is too fast, the command ..... from Control Blocks is used.

a. Wait b. Repeat c. Forever d. Else

4 A ..... is a library widely used in data science, statistics, and artificial intelligence.

a. Pandas b. Matplotlib c. NumPy d. Angular

5 To take pictures and videos, we use sensors ..... .

a. Sound b. Touch c. Light d. Vision

6 The text value of the variable is placed between the signs ..... .

a. " " b. <, > c. >= d. =<,

2 Put (✓) or (✗):

1. The first step in the operation of the sensor device is signal conversion. ( )
2. Python is a free and open-source language, which does not allow anyone to develop it. ( )
3. Medical robots help doctors performing surgeries. ( )
4. TAHER, Taher, taher, TaheR are 4 names of variables in the Python language. ( )
5. Super artificial intelligence can solve specific problems. ( )
6. Python can be integrated with other languages such as C, C++, and Java. ( )

3 Complete the following sentences:

1. In the Scratch program, the result of the work or project appears in the ..... .
2. To display texts, variables, or even the results of mathematical operations, we use the function ..... .
3. ..... in programming languages are a reserved place in memory to store and save a specific value.
4. In Scratch program, to execute the project, click on the icon ..... .
5. The file extension for Scratch project is ..... .
6. Artificial intelligence ..... can solve problems that are difficult for humans to solve easily and discover new things we never imagined before.

Model Exam 10

1 Choose the correct answer:

1. One of the Common applications of sensors is the use of infrared in ..... .
   a. Smartphones b. Vacuum Cleaners
   c. Remote controls d. 3D scanning
2. Artificial intelligence ..... can solve problems that are difficult for humans to solve easily.
   a. narrow b. general c. Super d. Precise
3. To execute the project, click on the icon ..... .
   a. b. c. d.
4. ..... is a library for analyzing and processing data.
   a. Pandas b. Matplotlib c. NumPy d. Angular

2 Put (✓) or (✗):

1. Self-driving cars rely entirely on artificial intelligence. ( )
2. The robots' work is limited to factories only. ( )
3. Scratch uses a visual interface based on blocks. ( )
4. Python is an interpreted language because it translates codes line by line. ( )

3 Complete by using words between brackets:

(Scratch - string - Artificial intelligence - motors)

1. ..... is a branch of computer science.
2. The ..... program helps the student learn the principles of programming.
3. The ..... used in robots include electric and pneumatic.
4. City = "Cairo", the data type of the variable City is a ..... .

Answers

MODEL (1)

1 1 b 2 c 3 a
4 b 5 c

2 1 ✗ 2 ✓ 3 ✗
4 ✗ 5 ✓

3 1 Narrow AI, General AI (or Super AI)
2 Sensors, Motors (or Structure, Controller, etc.)

MODEL (2)

1 1 a 2 c 3 b 4 b
5 c 6 b 7 c

2 1 ✓ 2 ✗ 3 ✗ 4 ✗
5 ✓ 6 ✓ 7 ✗

MODEL (3)

1 1 b 2 b 3 b
4 b 5 b

2 1 ✓ 2 ✓ 3 ✓
4 ✓ 5 ✗

MODEL (4)

1 1 c 2 d 3 b 4 a
5 d 6 a 7 a 8 a
9 a 10 a 11 c 12 a

2 1 ✗ 2 ✗ 3 ✓ 4 ✗
5 ✓ 6 ✓

MODEL (5)

2 1 b 2 b 3 a
4 c 5 c

2 1 ✓ 2 ✓ 3 ✓
4 ✗ 5 ✓

3 1 Python 2 Narrow AI

MODEL (6)

1 1 b 2 d 3 a
4 c 5 a

2 1 ✗ 2 ✓ 3 ✗ 4 ✓
5 ✗ 6 ✗ 7 ✗

MODEL (7)

1 1 b 2 a 3 b 4 b
5 a 6 c 7 d 8 a
9 a 10 a

2 1 ✓ 2 ✓ 3 ✗
4 ✗ 5 ✓

3 1 Sprites
2 Bluetooth
3 Touch Screen
4 Strings
5 Sensors

MODEL (8)

1 1 c 2 d 3 a 4 b
5 c 6 c

2 1 ✓ 2 ✗ 3 ✓ 4 ✓
5 ✓ 6 ✗

3
1 Artificial intelligence
2 Interpreted
3 Personal assistant
4 Remote controls
5 Type( )
6 Sb3

MODEL (9)

1 1 b 2 b 3 a 4 c
5 c 6 a

2 1 ✗ 2 ✗ 3 ✓ 4 ✓
5 ✗ 6 ✓

3 1 Stage Area 2 Print( )
3 Variables 4 Green Flag
5 sb3 6 Super

MODEL (10)

2 1 c 2 c 3 a 4 a

2 1 ✗ 2 ✗ 3 ✓ 4 ✓

3
1 Artificial intelligence
2 Scratch
3 motors 4 string